



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: Visco et al.

Attorney Docket No.: PLUSP036

Application No.: 10/772,157

Examiner: Not yet assigned

Filed: February 3, 2004

Group: Not yet assigned

Title: ACTIVE METAL/AQUEOUS  
ELECTROCHEMICAL CELLS AND SYSTEMS

CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the U.S. Postal Service with sufficient postage as first-class mail on February 25, 2004 in an envelope addressed to the Commissioner for Patents, P.O. Box 1450 Alexandria, VA 22313-1450.

Signed: \_\_\_\_\_

Tara Hayden

INFORMATION DISCLOSURE STATEMENT  
37 CFR §§1.56 AND 1.97(b)

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Dear Sir:

The references listed in the attached PTO Form 1449 may be material to examination of the above-identified patent application. Applicants submit the list of these references in compliance with their duty of disclosure pursuant to 37 CFR §§1.56 and 1.97. The Examiner is requested to make these references of official record in this application. The above-identified application is a continuation-in-part of prior application U.S. Patent Application No. 10/731,771, which is a continuation-in-part of prior application U.S. Patent Application No. 10/686,189. These prior applications are being relied upon for an earlier filing date under 35 U.S.C. § 120. Because the listed references were either cited by the PTO, or submitted to the PTO in the prior applications, under 37 CFR § 1.98(d) Applicants submit that copies need not be provided.

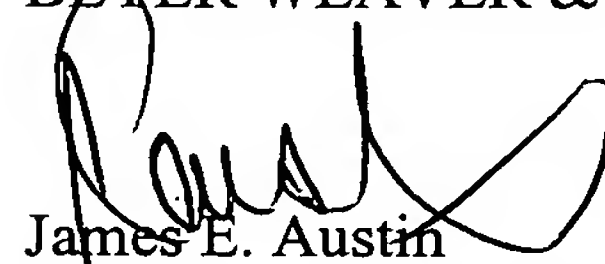
This Information Disclosure Statement is not to be construed as a representation that a search has been made, that additional information material to the examination of this application does not exist, or that these references indeed constitute prior art.

This Information Disclosure Statement is: (i) filed within three (3) months of the filing date of the above-referenced application, (ii) believed to be filed before the mailing date of a first Office Action on the merits, or (iii) believed to be filed before the mailing of a first Office Action after the filing of a Request for Continued Examination under §1.114. Accordingly, it is believed that no fees are due in connection with the filing of this Information Disclosure

Statement. However, if it is determined that any fees are due, the Commissioner is hereby authorized to charge such fees to Deposit Account 500388 (Order No. PLUSP036).

Respectfully submitted,

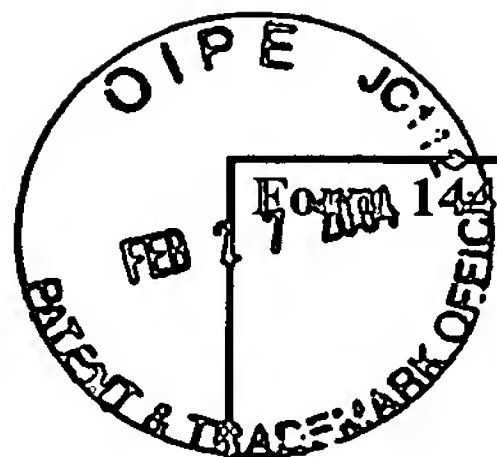
BEYER WEAVER & THOMAS, LLP

A handwritten signature in black ink, appearing to read "James E. Austin", written over the printed name.

James E. Austin

Registration No. 39,489

P.O. Box 778  
Berkeley, CA 94704-0778

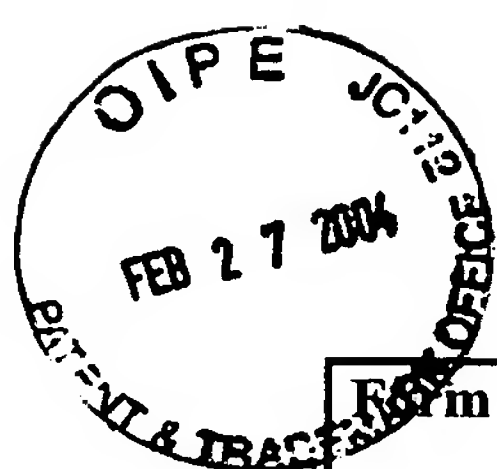


<b>Form 1449 (Modified)</b> <b>Information Disclosure Statement By Applicant</b> (Use Several Sheets if Necessary)	Atty Docket No. PLUSP036 Applicant: Visco, et al. Filing Date February 3, 2004	Application No.: 10/772,157  Group Not yet assigned
--	---	---

### U.S. Patent Documents

Examiner Initial	No.	Patent No.	Date	Patentee	Class	Sub-class	Filing Date
	A1	5,648,187	07/15/97	Skotheim			
	A2	5,314,765	05/24/94	Bates			
	A3	4,981,672	01/01/91	De Neufville et al.			
	A4	6,025,094	02/2000	Visco, et al.			
	A5	5,342,710	08/30/94	Koksbang			
	A6	5,409,786	04/25/95	Bailey			
	A7	5,100,523	03/31/92	Helms et al.			
	A8	5,696,201	12/09/97	Cavalloni, et al.			
	A9	4,162,202	07/24/79	Dey			
	A10	5,455,126	10/03/95	Bates et al.			
	A11	5,338,625	08/16/94	Bates et al.			
	A12	5,597,660	01/28/97	Bates et al.			
	A13	5,612,152	03/18/97	Bates			
	A14	5,569,520	10/29/96	Bates			
	A15	5,512,147	04/30/96	Bates et al.			
	A16	5,567,210	10/22/96	Bates et al.			
	A17	5,455,126	10/03/95	Bates et al.			
	A18	6,475,677 B1	11/05/02	Inda et al.			
	A19	6,485,622 B1	11/26/02	Fu			
	A20	6,315,881 B1	11/13/01	Fu			
	A21	6,030,909	02/29/00	Fu			
	A22	5,702,995	12/30/97	Fu			
	A23	4,985,317	01/15/91	Adachi et al.			
	A24	6,402,795 B1	06/11/02	Chu et al.			
	A25	6,214,061 B1	04/10/01	Visco et al.			
	A26	6,413,284 B1	07/02/02	Chu et al.			
	A27	5,686,201	11/11/97	Chu			
	A28	6,376,123	04/23/02	Chu			
	A29	6,413,285 B1	07/02/02	Chu et al.			
	A30	6,183,901 B1	02/06/01	Ying et al.			
	A31	6,432,584 B1	08/13/02	Visco et al.			
	A32	5,961,672	10/05/99	Skotheim et al.			
	A33	5,387,479	02/07/95	Koksbang			
	A34	5,336,384	08/09/94	Tsou et al.			
	A35	3,976,509	08/24/76	Tsai et al.			
	A36	4,007,057	02/08/77	Littauer et al.			

Examiner: Initial citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.



Form 1449 (Modified)	Atty Docket No. PLUSP036	Application No.: 10/772,157
<b>Information Disclosure Statement By Applicant</b>	Applicant: Visco, et al.	
(Use Several Sheets if Necessary)	Filing Date February 3, 2004	Group Not yet assigned

### U.S. Patent Documents

Examiner Initial	No.	Patent No.	Date	Patentee	Class	Sub- class	Filing Date
	A1	5,648,187	07/15/97	Skotheim			
	A2	5,314,765	05/24/94	Bates			
	A3	4,981,672	01/01/91	De Neufville et al.			
	A4	6,025,094	02/2000	Visco, et al.			
	A5	5,342,710	08/30/94	Koksbang			
	A6	5,409,786	04/25/95	Bailey			
	A7	5,100,523	03/31/92	Helms et al.			
	A8	5,696,201	12/09/97	Cavalloni, et al.			
	A9	4,162,202	07/24/79	Dey			
	A10	5,455,126	10/03/95	Bates et al.			
	A11	5,338,625	08/16/94	Bates et al.			
	A12	5,597,660	01/28/97	Bates et al.			
	A13	5,612,152	03/18/97	Bates			
	A14	5,569,520	10/29/96	Bates			
	A15	5,512,147	04/30/96	Bates et al.			
	A16	5,567,210	10/22/96	Bates et al.			
	A17	5,455,126	10/03/95	Bates et al.			
	A18	6,475,677 B1	11/05/02	Inda et al.			
	A19	6,485,622 B1	11/26/02	Fu			
	A20	6,315,881 B1	11/13/01	Fu			
	A21	6,030,909	02/29/00	Fu			
	A22	5,702,995	12/30/97	Fu			
	A23	4,985,317	01/15/91	Adachi et al.			
	A24	6,402,795 B1	06/11/02	Chu et al.			
	A25	6,214,061 B1	04/10/01	Visco et al.			
	A26	6,413,284 B1	07/02/02	Chu et al.			
	A27	5,686,201	11/11/97	Chu			
	A28	6,376,123	04/23/02	Chu			
	A29	6,413,285 B1	07/02/02	Chu et al.			
	A30	6,183,901 B1	02/06/01	Ying et al.			
	A31	6,432,584 B1	08/13/02	Visco et al.			
	A32	5,961,672	10/05/99	Skotheim et al.			
	A33	5,387,479	02/07/95	Koksbang			
	A34	5,336,384	08/09/94	Tsou et al.			
	A35	3,976,509	08/24/76	Tsai et al.			
	A36	4,007,057	02/08/77	Littauer et al.			

Examiner: Initial citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.



Form 1449 (Modified)	Atty Docket No. PLUSP036	Application No.: 10/772,157
<b>Information Disclosure Statement By Applicant</b>	Applicant: Visco, et al.	
(Use Several Sheets if Necessary)	Filing Date February 3, 2004	Group Not yet assigned

#### Foreign Patent or Published Foreign Patent Application

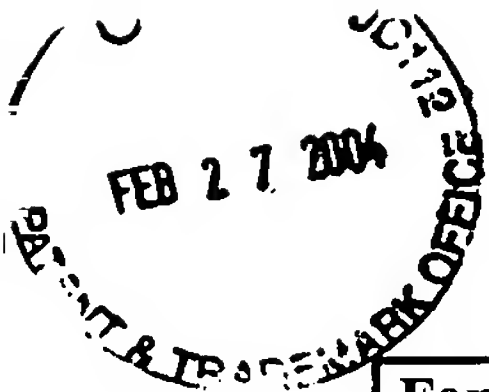
Examiner Initial	No.	Document No.	Publication Date	Country or Patent Office	Class	Sub- class	Translation	
							Yes	No
	B1	0875951A1	11/04/98	EP				
	B2	0689260B1	04/21/99	EP				
	B3	0111214B1	11/23/83	EP				
	B4	0111213A2	11/23/83	EP				
	B5	JP 55081471	1980/06/19	Japan				

#### Other Documents

Examiner Initial	No.	Author, Title, Date, Place (e.g. Journal) of Publication
	C1	Nippon Telegr & Teleph Corp., "Patent Abstracts of Japan," vol. 008, no. 119 (E-248), June 5, 1984 & JP 59 031573 A, 20 February 1984.
	C2	Anders et al., "Plasma is Produced Simply", R&D Research & Development, R&D Magazine, Vol. 39, No. 10, September 1997, <a href="http://www.rdmag.com">www.rdmag.com</a> , p. 65.
	C3	Steven D. Jones, et al., "Thin film rechargeable Li batteries", 1994, <u>Solid State Ionics</u>
	C4	J.B. Bates, et al., "Thin-film rechargeable lithium batteries," 1995, <u>Journal of Power Sources</u>
	C5	N. J. Dudney, et al., "Sputtering of lithium compounds for preparation of electrolyte thin films," 1992, <u>Solid State Ionics</u>
	C6	J. B. Bates, et al., "Electrical properties of amorphous lithium electrolyte thin films," 1992, <u>Solid State Ionics</u>
	C7	Xiaohua Yu, et al, "A Stable Thin-Film Lithium Electrolyte: Lithium Phosphorus Oxynitride," 02-97, <u>J. Electrochem. Soc.</u> , Vol 144, No. 2
	C8	Fu, Jie, "Fast Li+ Ion Conduction in Li2O-Al2O3-TiO2-SiO2-P2O5 Glass-Ceramics", Journal of the American Ceramics Society, Vol. 80, No. 7, July 1997, pp. 1-5.
	C9	Aono et al., "Ionic Conductivity of the Lithium Titanium Phosphate (Li <sub>1+x</sub> M <sub>x</sub> Ti <sub>2-x</sub> (PO <sub>4</sub> ) <sub>3</sub> , M = Al, Sc, Y, and La) Systems", Dept. of Industrial Chemistry, pp. 590-591.
	C10	Aono, Hiromichi, "High Li+ Conducting Ceramics", Acc. Chem. Res. Vol. 27, No. 9, 1994, pp. 265-270.
	C11	Aono, et al., "Ionic Conductivity and Sinterability of Lithium Titanium Phosphate System", Solid State Ionics, 40/41 (1990), pp. 38-42.
	C12	Aono, et al., "Electrical properties and crystal structure of solid electrolyte based on lithium hafnium phosphate LiHf <sub>2</sub> (PO <sub>4</sub> ) <sub>3</sub> ", Solid State Ionics 62 (1993), pp. 309-316.
Examiner		Date Considered

Examiner: Initial citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.





<b>Form 1449 (Modified)</b>  <b>Information Disclosure Statement By Applicant</b>  (Use Several Sheets if Necessary)	Atty Docket No. PLUSP036 Applicant: Visco, et al. Filing Date February 3, 2004	Application No.: 10/772,157  Group Not yet assigned
--	---	---

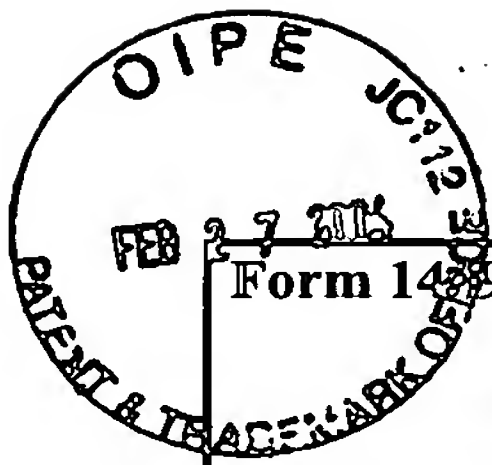
#### U.S. Patent Documents

Examiner Initial	No.	Patent No.	Date	Patentee	Class	Sub-class	Filing Date
	A37	5,108,856	04/28/92	Shuster			
	A38	5,427,873	06/27/95	Shuster			
	A39	5,525,442	06/11/96	Shuster			
	A40	6,146,787	11/14/00	Harrup et al.			
	A41	5,510,209	04/23/96	Abraham et al.			
	A42	5,652,068	07/29/97	Shuster et al.			
	A43	5,665,481	09/09/97	Shuster et al.			
	A44	4,163,084	07/31/79	Tsai et al.			

#### Other Documents

Examiner Initial	No.	Author, Title, Date, Place (e.g. Journal) of Publication
	C13	Aono, et al., "Electrical property and sinterability of $\text{LiTi}_2(\text{PO}_4)_3$ mixed with lithium salt ( $\text{Li}_3\text{PO}_4$ or $\text{Li}_3\text{BO}_3$ )", Solid State Ionics 47 (1991) pp. 257-264.
	C14	Aono, et al., "Ionic Conductivity of $\beta\text{-Fe}_2(\text{SO}_4)_3$ Type $\text{Li}_3\text{Cr}_2(\text{PO}_4)_3$ Based Electrolyte", Chemistry Letters, 1993, pp. 2033-2036.
	C15	Aono, et al., "Ionic Conductivity of $\text{LiTi}_2(\text{PO}_4)_3$ Mixed with Lithium Salts", Chemistry Letters, 1990, pp. 331-334.
	C16	Fu, Jie, "Superionic conductivity of glass-ceramics in the system $\text{Li}_2\text{O}-\text{Al}_2\text{O}_3-\text{TiO}_3-\text{P}_2\text{O}_5$ ", Solid State Ionics, 96 (1997), pp.195-200.
	C17	Fu, Jie, "Fast $\text{Li}^+$ ion conducting glass-ceramics in the system $\text{Li}_2\text{O}-\text{Al}_2\text{O}_3-\text{GeO}_2-\text{P}_2\text{O}_5$ " Solid State Ionics 104 (1997), pp. 191-194.
	C18	Aono, et al., "DC Conductivity of $\text{Li}_{1.3}\text{Al}_{0.3}\text{Ti}_{1.7}(\text{PO}_4)_3$ " Ceramic with Li Electrodes", Chemistry Letters, 1991, pp. 1567-1570.
	C19	Aono, et al., "Electrical Properties of Sintered Lithium Titanium Phosphate Ceramics ( $\text{Li}_{1+x}\text{M}_x\text{Ti}_{2-x}\text{PO}_4$ ) <sub>3</sub> , $\text{M}^{3+}=\text{Al}^{3+}, \text{Sc}^{3+}$ , or $\text{Y}^{3+}$ ", Chemistry Letters, 1990, pp. 1825-1828.
	C20	Button, et al., "Structural disorder and enhanced ion transport in amorphous conductors", Solid State Ionics, Vols. 9-10, Part 1, December 1983, pp. 585-592 (abstract)
	C21	Shuster, Nicholas, "Lithium Water Power Source for Low Power - Long Duration Undersea Applications", Westinghouse Electric Corporation, 1990 IEEE, pp. 118-123.
	C22	VanVoorhis, et al., "Evaluation of Air Cathodes for Lithium/Air Batteries", Electrochemical Society Proceedings Volume 98-16, 1999, pp. 383-390.
Examiner		Date Considered

Examiner: Initial citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.



<b>Form 1429 (Modified)</b>  <b>Information Disclosure Statement By Applicant</b>  (Use Several Sheets if Necessary)	Atty Docket No. PLUSP036 Applicant: Visco, et al. Filing Date February 3, 2004	Application No.: 10/772,157  Group Not yet assigned
--	---	---

**Other Documents**

Examiner Initial	No.	Author, Title, Date, Place (e.g. Journal) of Publication
	C23	Blurton et al., "Metal/Air Batteries: Their Status and Potential – A Review", Journal of Power Sources, 4, (1979), pp. 263-279.
	C24	J. Read, "Characterization of the Lithium/Oxygen Organic Electrolyte Battery", Journal of The Electrochemical Society, 149 (9) (2002), pp. A1190-A1195.
	C25	Abraham et al., "A Polymer Electrolyte-Based Rechargeable Lithium/Oxygen Battery", Technical Papers, Electrochemical Science and Technology, J. Electrochem. Soc., Vol. 143, No. 1, January 1996, pp. 1-5.
	C26	Kessler, et al., "Large Microsheet Glass for 40-in. Class PALC Displays", 1997, FMC2-3, pp. 61-63.
	C27	Feng et al., "Electrochemical behavior of intermetallic-based metal hydrides used in Ni/metal hydride (MH) batteries: a review", International Journal of Hydrogen Energy, 26 (2001), pp. 725-734.
	C28	Iwakura et al., "All solid-state nickel/metal hydride battery with a proton-conductive phosphoric acid-doped silica gel electrolyte", Electrochimica Acta 48 (2003), pp. 1499-1503.
	C29	Li et al., "Lithium-Ion Cells with Aqueous Electrolytes", J. Electrochem. Soc., Vol. 142, No. 6, June 1995, pp. 1742-1746.
	C30	Zhang et al., "Electrochemical Lithium Intercalation in VO <sub>2</sub> (B) in Aqueous Electrolytes", J. Electrochem. Soc., Vol. 143, No. 9, September 1996, pp. 2730-2735.
	C31	Urquidi-Mcdonald, Mirna, "Hydrogen storage and semi-fuel cells", <a href="http://enr.psu.edu/h2e/Pub/Macdonald1.htm">http://enr.psu.edu/h2e/Pub/Macdonald1.htm</a> , (downloaded January 27, 2004, 3 pages).
	C32	Urquidi-Mcdonald, et al., "Lithium/poly(organophosphazene) membrane anodes in KOH and seawater", Electrochimica Acta 47, (2002), pp. 2495-2503.
Examiner		Date Considered

Examiner: Initial citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant